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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/658,215 | 09/09/2003 | Francois Roy | S1022.81038US00 | 2710 |

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EXAMINER

VU, QUANG D

ART UNIT PAPER NUMBER

2811

DATE MAILED: 07/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/658,215

Applicant(s)

ROY, FRANCOIS

Examiner

Quang D Vu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 09/09/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

Figures 1-4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (AAPA).

Regarding claim 1, AAPA (figures 1-4) teaches a monolithic photodetector comprising:
a first active area (10) of doped single-crystal silicon corresponding to first and second photodiodes having a same surface area as two charge transfer MOS transistors, and as one

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storage diode, a cathode of each photodiode being connected to a cathode of the storage diode via one of the charge transfer MOS transistors;

a second active area (18) of doped single-crystal silicon arranged next to a portion of the first active area associated with the second photodiode and corresponding to a precharge switch having a first terminal connected to the cathode of the storage diode and a second terminal connected to a reference voltage; and

a third active (20) doped single-crystal silicon area arranged next to the portion of the first active area associated with the first photodiode and corresponding to two read MOS transistors in series, the gate of one of the read transistors being connected to the cathode of the storage diode and the drain or the source of one of the read transistors being connected to a processing system.

AAPA differs from the claimed invention by not showing the surfaces of the second and third active areas exposed to a lighting are substantially identical. It would have been obvious to one having ordinary skill in the art at the time the invention was made for the surfaces of the second and third active areas exposed to a lighting are substantially identical since they use to receive a lighting.

Regarding claim 2, AAPA differs from the claimed invention by not showing the second and third active areas have substantially identical surface areas. It would have been obvious to one having ordinary skill in the art at the time the invention was made for the second and third active areas have substantially identical surface areas since they use to receive a lighting.

Regarding claim 3, AAPA differs from the claimed invention by not showing the first, second, and third active areas are rectangular, the second and third active areas being of same dimensions and substantially aligned at a same distance from a side of the first active area. It

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would have been obvious to one having ordinary skill in the art at the time the invention was made for the first, second, and third active areas are rectangular, the second and third active areas being of same dimensions and substantially aligned at a same distance from a side of the first active area because it uses to receive lighting. Furthermore, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 8, AAPA teaches the gates of the charge transfer MOS transistors correspond to portions of polysilicon strips, which extend between the second and third active areas.

3. Claim 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (AAPA) in view of US Patent No. 6,392,279 to Toyofuku.

Regarding claim 4, AAPA differs from the claimed invention by not showing the precharge switch is a MOS transistor with two parallel gates. However, Toyofuku (figures 1A-2C) teaches MOS transistor with dual gates (7g). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Toyofuku into the device taught by AAPA because it provides more interconnections with other devices. The combined device shows the precharge switch is a MOS transistor with two parallel gates.

Regarding claim 5, the combined device differs from the claimed invention by not showing the gates of the two read transistors correspond to portions of first and second polysilicon strips and wherein the two gates of the MOS transistor with two gates correspond to

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portions of third and fourth parallel polysilicon strips, the sum of the surface areas exposed to light of the third and fourth parallel polysilicon strips being substantially equal to the sum of the surface areas exposed to light of the first and second polysilicon strips. It would have been obvious to one having ordinary skill in the art at the time the invention was made for the gates of the two read transistors correspond to portions of first and second polysilicon strips and wherein the two gates of the MOS transistor with two gates correspond to portions of third and fourth parallel polysilicon strips, the sum of the surface areas exposed to light of the third and fourth parallel polysilicon strips being substantially equal to the sum of the surface areas exposed to light of the first and second polysilicon strips because it uses to receive lighting.

Regarding claim 6, the combined device shows a fifth polysilicon strip, perpendicular to the third and fourth parallel polysilicon strips, connects the third and fourth parallel strips.

Regarding claim 7, the combined device shows a metal strip connected to the fifth polysilicon strip, said metal strip comprising an extension partially covering the second polysilicon strip.

Conclusion

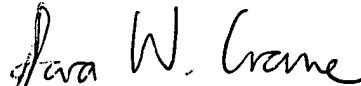
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang D Vu whose telephone number is 571-272-1667. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on 571-272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

qv
June 25, 2004


Sara Crane
Primary Examiner